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(54) **PLASTIC ELEMENT FOR A BOTTLE IN PARTICULAR A COSMETIC BOTTLE**

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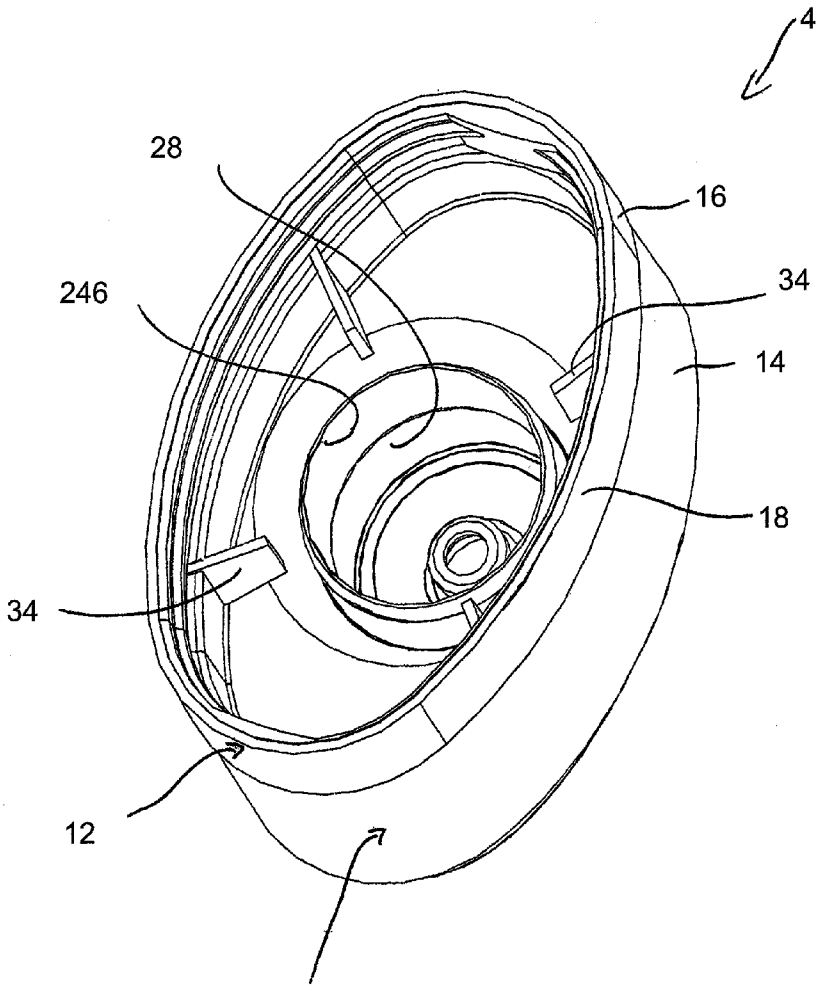
(57) **ABSTRACT**

A closure element contains a cap element for closing a bottle. The cap element has a first bottleneck section that is configured for attachment to a bottleneck of the bottle. In addition, at least one adapter is provided for placement between the cap element and the bottle. The adapter has a second bottleneck connection, which is similar to the first bottleneck connection, and a bottleneck piece onto which the cap element can be placed with its first bottleneck connection. The bottleneck connections are preferably configured as snap closures. Due to the two-part construction of the closure element with the cap element and the adapter a multitude of variants is made possible for the closure element in an inexpensive manner.



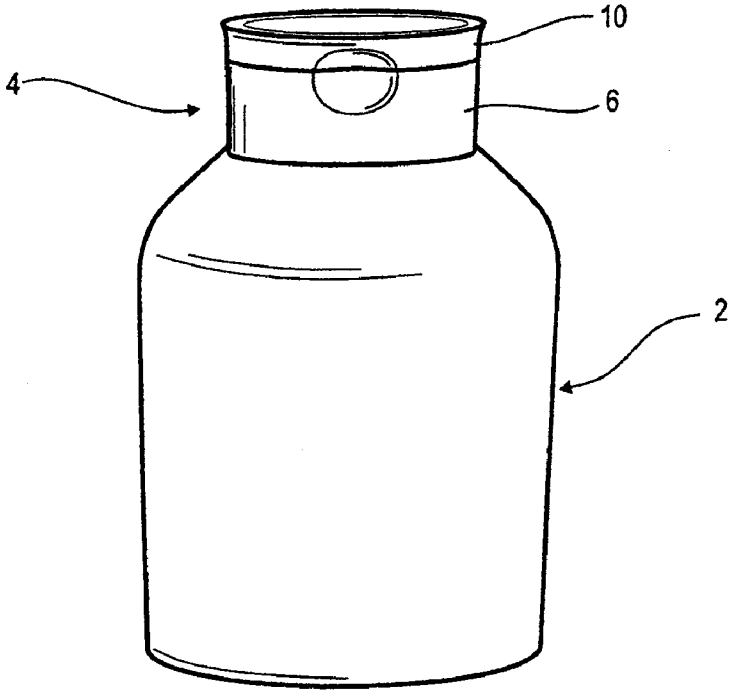


FIG.1
PRIOR ART

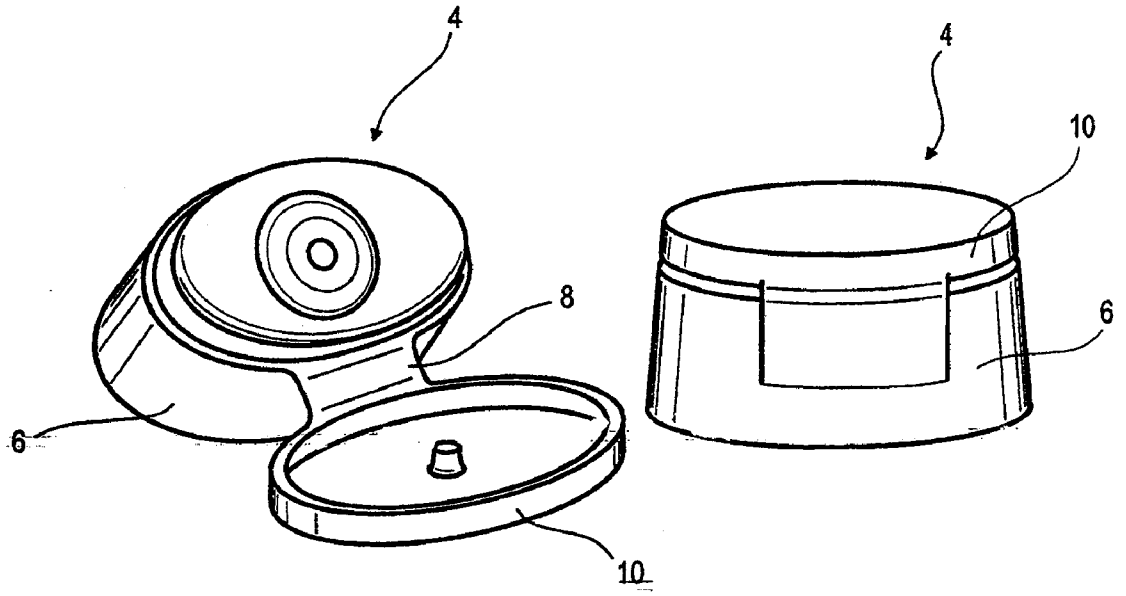


FIG.2
PRIOR ART

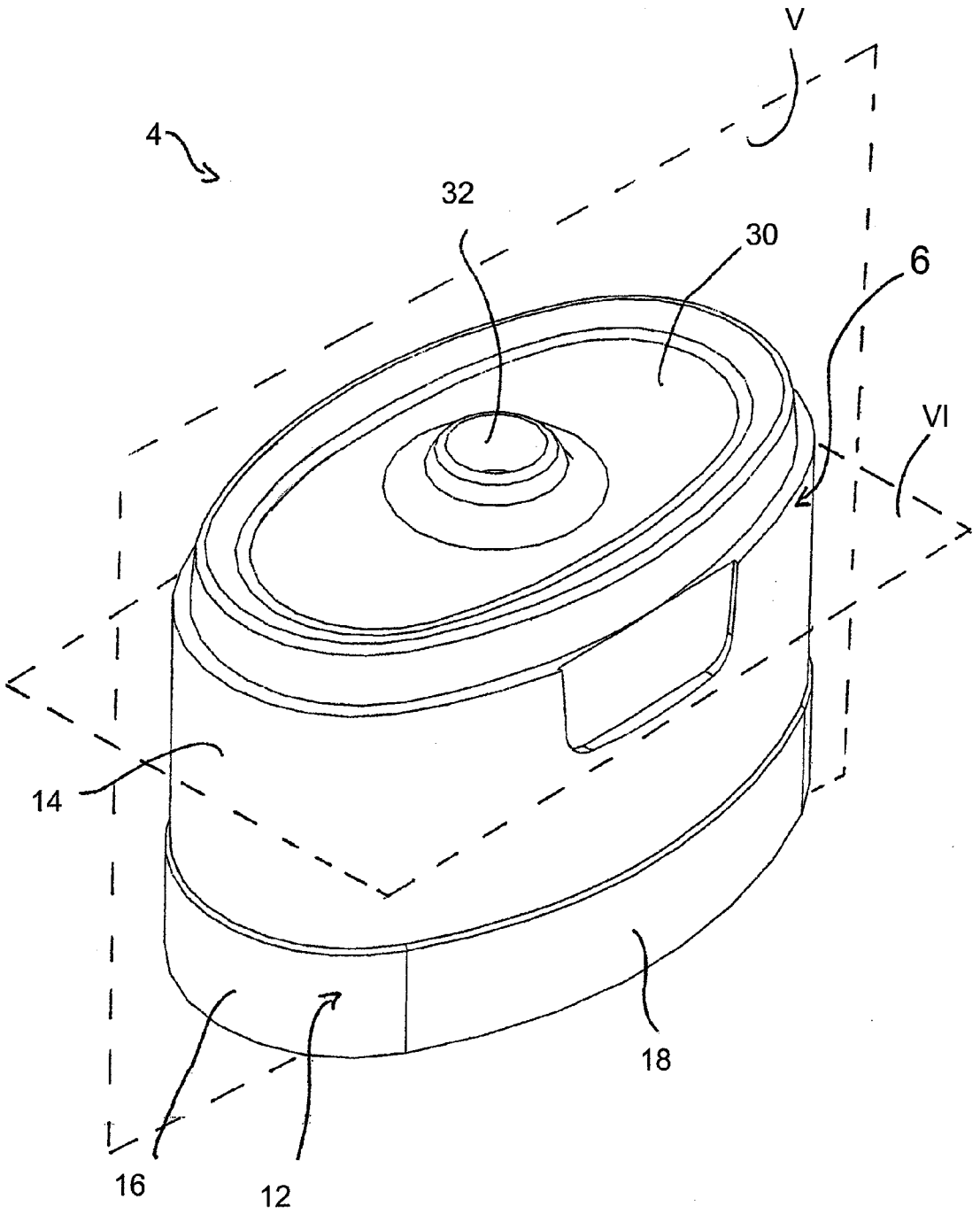


FIG.3

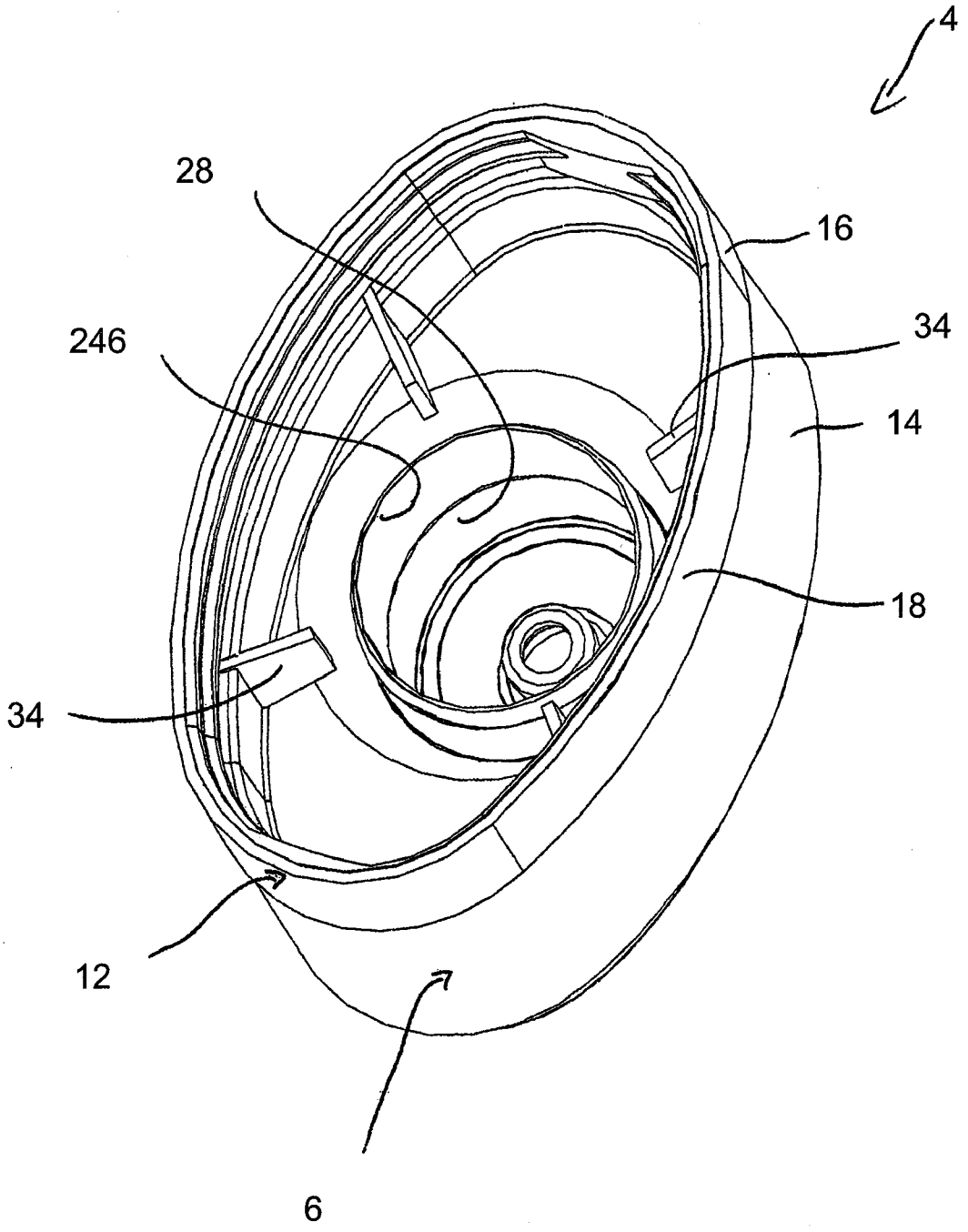


FIG.4

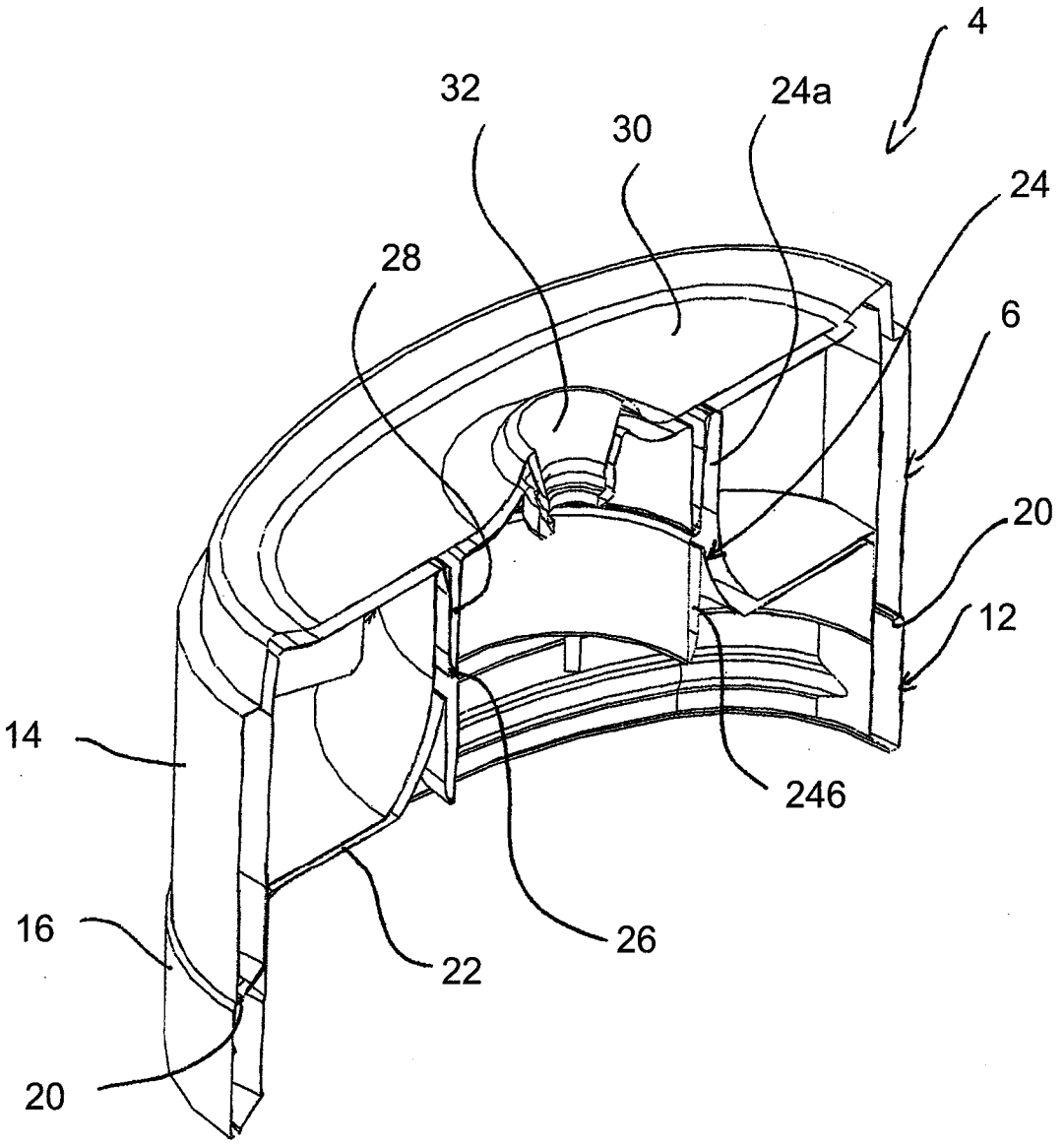


FIG.5

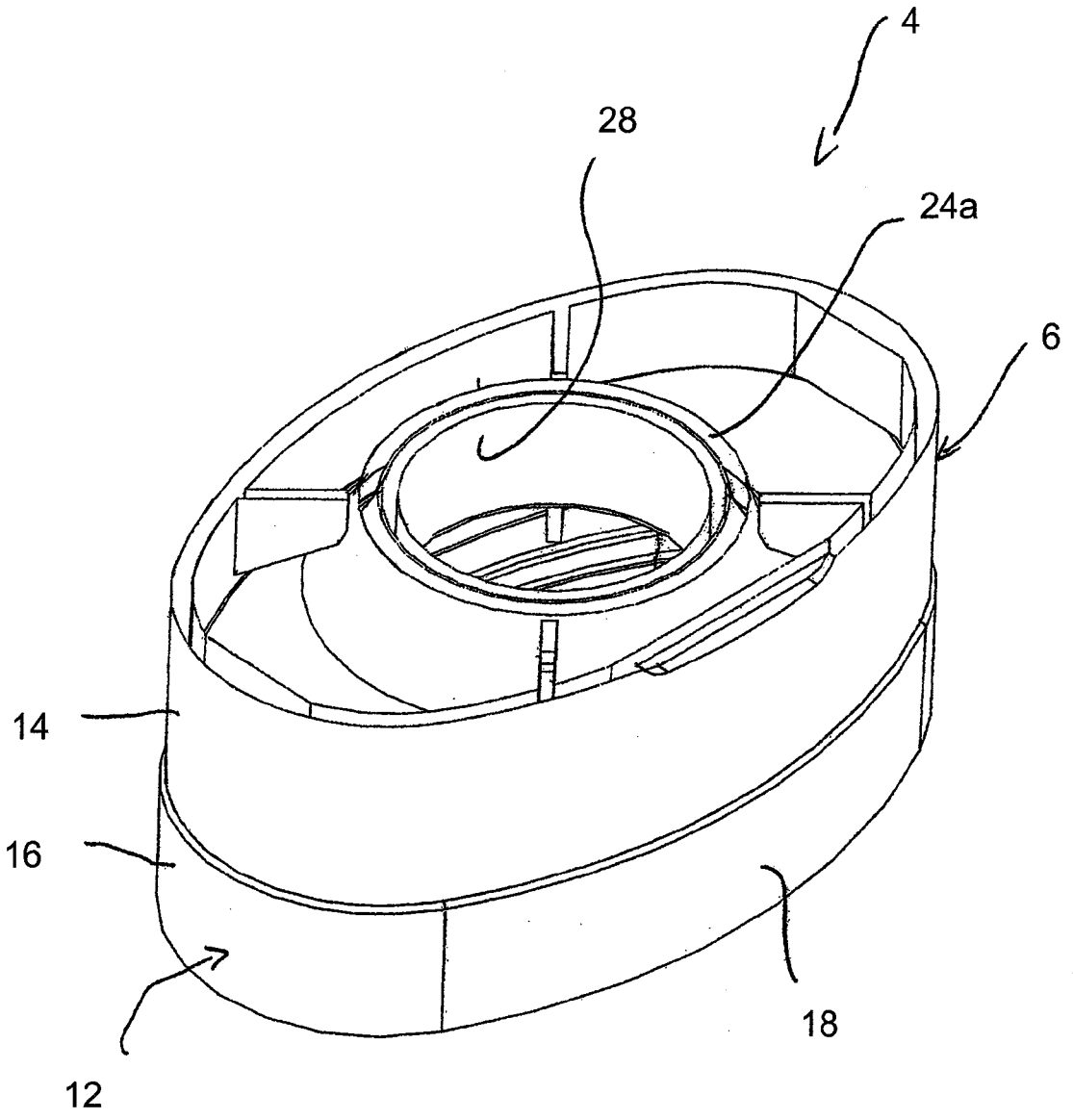


FIG.6

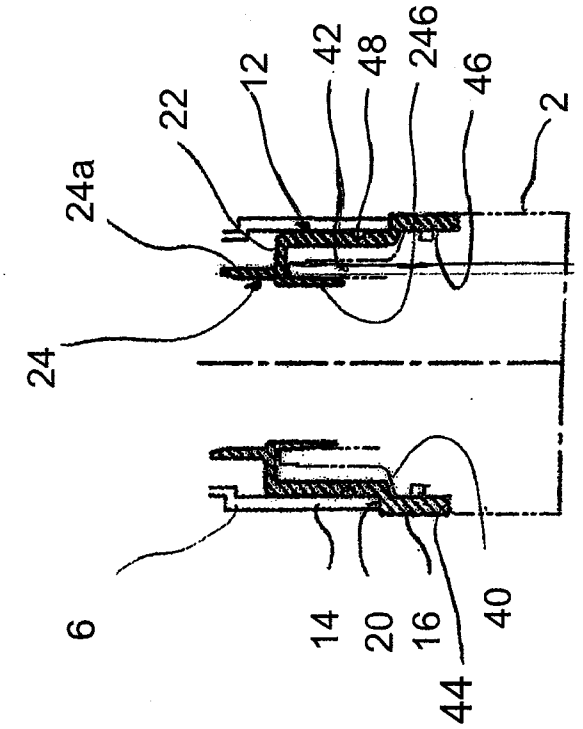
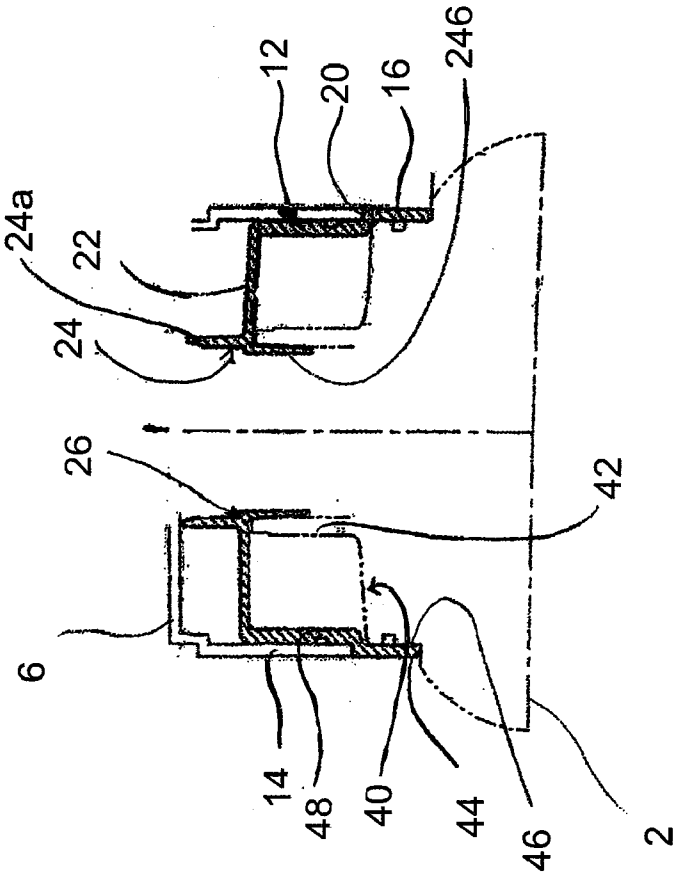

24a
22
12
42
48
246
46
2
24
6
14
20
16
40
44

FIG.8


12
20
16
246
24a
22
24
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42
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44
46
2

FIG.7

PLASTIC ELEMENT FOR A BOTTLE IN PARTICULAR A COSMETIC BOTTLE

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the priority, under 35 U.S.C. § 119, of German application DE 20 2006 016 478.2, filed Oct. 24, 2006; the prior application is herewith incorporated by reference in its entirety.

BACKGROUND OF THE INVENTION

Field of the Invention

[0002] The present invention relates to a plastic closure element for a bottle, in particular a cosmetic bottle.

[0003] Liquid body care products such as soaps, shampoos, shower products, lotions, etc., are often offered to the end customer in bottles as retail packaging. Such bottles, hereinafter also referred to as cosmetic bottles, are made of plastic and can be closed with a cap-shaped closure element. A large versatility is possible here with regard to the shaping and coloration of both the bottles and the closure elements.

[0004] The closure elements are often formed as so-called snap closures. Snap closures are understood to refer to a closure that need only be snapped or pressed against the neck of the bottle, optionally inducing a slight rotational movement. In the case of a snap closure, it is therefore no longer necessary to screw a cap on in a tedious operation such as that with conventional screw closures. A closure cover is frequently hinge-connected to the cap element via a hinge. The cap element and the closure cover here form a one-piece component and are usually configured as a standard injection molded plastic part.

[0005] Because of the complex mechanism to form the flat hinge, production of such a snap closure with a cover attached by a hinge is comparatively complex and therefore expensive, so that such closure elements can usually be offered only when a very large number of items are to be manufactured. It is therefore hardly possible to offer inexpensive variations on such a closure element—apart from color variations—to comply with specific customer requests, for example, where the customer wants an exclusive closure element as a customer-specific configuration. The customers in question here are generally understood to be the providers and manufacturers of body care products.

BRIEF SUMMARY OF THE INVENTION

[0006] It is accordingly an object of the invention to provide a plastic element for a cosmetic bottle which overcomes the above-mentioned disadvantages of the prior art devices of this general type, which will permit a great versatility in variants in an inexpensive manner.

[0007] With the foregoing and other objects in view there is provided, in accordance with the invention, a plastic closure element for a bottle. The plastic closure element contains a cap element for closing the bottle. The cap element has a first bottleneck connection for placement on a bottleneck of the bottle. At least one adapter is disposed between the cap element and the bottle. The adapter has a second bottleneck connection being similar to the first bottleneck connection and a bottleneck piece connected to the second bottleneck connection. The cap element is disposed with the first bottleneck connection onto the bottleneck piece.

[0008] According to the invention, the closure element has a cap element for closing a cosmetic bottle in particular. The cap element here contains a first bottleneck connection that is configured for attachment to a bottleneck of the bottle corresponding to the bottleneck connection. In addition, at least one adapter is provided for arrangement between the cap element and the bottle. The adapter has a second bottleneck connection which is similar to the first bottleneck connection and to which a bottleneck piece is connected, the cap element with its first bottleneck connection being attachable thereto. The plastic closure element is therefore characterized by a two-part configuration on the whole, formed of a traditional cap element and an adapter piece. The adapter is configured so it is identical to the cap element for attachment to the neck of the bottle on the one hand while on the other hand the adapter also simulates the neck of the bottle so that any traditional cap element can be placed on the adapter just as it would be placed on a bottleneck. The adapter therefore simulates the head area of the bottle on the side facing its cap element.

[0009] The two-part configuration with the adapter creates an additional degree of freedom in design for an individual customer-specific embodiment of the closure element. At the same time, costs are kept low because the cap element, as a traditional cap element, may optionally be combined with an adapter or without. In principle, several adapters could even be arranged in a row so that additional degrees of freedom are created.

[0010] To ensure a secure and reliable seating of the cap element on the adapter, according to a preferred embodiment, the first bottleneck connection of the cap element is inserted into the bottleneck piece in such a way that the second bottleneck connection of the adapter is connected to the first bottleneck connection so that it is flush. In particular the bottleneck connection sits on a peripheral edge of the adapter between its bottleneck piece and the bottleneck connection with a supporting effect. With regard to the desired simulation of the head area of the bottle by the adapter, the latter has an outer circumferential jacket in a preferred embodiment, the bottleneck piece protruding upward beyond the jacket in the direction of the cap element. The bottleneck piece therefore extends freely upward, like the bottleneck of a normal bottle.

[0011] In addition, in an expedient embodiment, an intermediate plate is provided, the plate starting from the outer jacket, the bottleneck connection and the bottleneck piece of the adapter being arranged in the central area, these parts extending in opposite directions starting from the intermediate plate. The intermediate plate is configured here in particular so that it rises toward the cap element.

[0012] With regard to a simple structural design, the second bottleneck connection and the bottleneck piece of the adapter are configured as a joint cylindrical apron containing an upper apron part and a lower apron part, the two apron parts having different inside diameters. The upper apron part forms the bottleneck piece with an enlarged inside diameter into which the first bottleneck connection of the cap element is inserted with an accurate fit. The inside diameter of the second bottleneck connection is smaller and corresponds to

the inside diameter of the first bottleneck connections of the cap element so that the two bottleneck receptacles are flush with one another when stuck together.

[0013] According to a preferred embodiment, the outer jacket of the adapter has at least one embossing. Due to the embossing, additional differentiating features can be made available inexpensively and in a simple manner. For example, this makes it possible to emboss the closure with a logo or the brand name of the manufacturer of the cosmetic article. In terms of manufacturing technology, such embossing in the jacket is accomplished very easily. The adapter, like the cap element, is an injection molded plastic part. For the design of the embossing in production, a replaceable insert plate is now mounted in the area of the jacket in the mold required for the injection molded plastic part in this embodiment. To be able to perform different embossings here, it is therefore necessary only to replace the insert plate without having to redesign the entire mold.

[0014] To achieve a high level of operating convenience and to give a high quality impression, the cap element expediently has a closure cover attached so that it is pivotably movable via a hinge. The cap element here together with the closure cover and the hinge forms a one-piece injection molded plastic part. In addition, the bottleneck connections on the adapter as well as the cap element are each configured as a snap closure to thereby permit simple and inexpensive assembly.

[0015] The object is achieved according to the present invention by an adapter and by an assortment of closure elements. The advantages and preferred embodiments described with regard to the closure element are appropriately also applicable to the adapter and the assortment of closure elements as well. In the case of the assortment of closure elements, a plurality of types of cap elements and at least one but preferably several types of adapters are provided. The different types of adapters are each configured to fit with the different types of cap elements, so that the different types of adapters may optionally be combined with the different types of cap elements. In this way, a great choice of the assortment and thus an extensively individual embodiment of a specific plastic closure element are made possible with a comprehensible selection of parts due to the different combination options.

[0016] Other features which are considered as characteristic for the invention are set forth in the appended claims.

[0017] Although the invention is illustrated and described herein as embodied in a plastic element for a cosmetic bottle in particular it is nevertheless not intended to be limited to the details shown, since various modifications and structural changes may be made therein without departing from the spirit of the invention and within the scope and range of equivalents of the claims.

[0018] The construction and method of operation of the invention, however, together with additional objects and advantages thereof will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0019] FIG. **1** is a diagrammatic, front view of a cosmetic bottle with a traditional closure element;

[0020] FIG. **2** is a diagrammatic, perspective view of the closure element configured as a traditional snap closure with a closure cover hinge-connected via a hinge;

[0021] FIG. **3** is a diagrammatic, perspective view of the closure element containing a cap element and adapter according to the invention;

[0022] FIG. **4** is a diagrammatic, perspective inside view of the closure element according to FIG. **3** as seen in the direction from the adapter to the cap element;

[0023] FIG. **5** is a diagrammatic, perspective, cut-away view of the sectional plane V shown in FIG. **3**;

[0024] FIG. **6** is a diagrammatic, sectional view of the closure element according to the sectional plane VI shown in FIG. **3**;

[0025] FIG. **7** is a diagrammatic, sectional detail view through the cosmetic bottle in the area of the closure element; and

[0026] FIG. **8** is a diagrammatic, sectional detail view like that in FIG. **7** of another variant of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0027] Parts that have the same effect in the figures are labeled with the same reference numerals. Referring now to the figures of the drawing in detail and first, particularly, to FIG. **1**, there is shown a cosmetic bottle **2** that has a traditional closure element **4**, which is configured in the manner of a snap closure and can easily be snapped onto the bottleneck of the bottle **2**, which is not shown in greater detail here, by pressing it on, thereby attaching it.

[0028] FIG. **2** shows a traditional closure element **4**, which is also configured as a snap closure element. The closure element **4** here is formed by a cap element **6**, which has a closure cover **10** hinge-connected by a hinge **8**.

[0029] The configuration of an inventive closure element **4** can be seen from FIGS. **3** through **6**, formed of a traditional cap element **6** and an adapter **12** that has been specially adapted. As shown in the figures, the cap element **6** is placed on the adapter **12**. An outer jacket **14** of the cap element **6** develops into a jacket **16** on the adapter **12**, so that it is flush or almost flush. Therefore, in the assembled state, the outer jacket **16** of the adapter is visible from the outside. The adapter **12** is configured as an injection molded plastic part, as is the cap element **6**. Due to the two-part configuration of the closure element **4**, the two parts in any color combinations may be brought together to form different variations. Furthermore, the jacket **16** of the adapter surrounds a marking area **18**, which is provided with an embossing (not shown in greater detail here). The embossing is formed in the injection molding of the plastic part by inserting a special insert plate in the injection mold.

[0030] The basic configuration of the adapter **12** here is such that it generally simulates the head area of the bottle **2** on its top side and in its lower area it simulates the snap closure mimicry of the traditional cap element **6**. Due to this basic design, the adapter **12** can be combined with a very large number of additional cap elements, so that multiple adapters can be disposed one after the other due to this selected design. In addition, due to the selected design as a

snap closure of the adapter **12** as well as the cap element **6**, a simple and inexpensive assembly is possible. On the whole, this creates a broad assortment with a large number of different possible variations, so that a customer-specific individualization of the closure element is made possible. The cap element **6** corresponds here in particular to the cap element **6** shown in FIG. **2**, but the closure element **10** is not shown in FIG. **3** through **6**.

[**0031**] The adapter **12** contains the above-mentioned outer jacket **16**, forming at its upper edge a supporting edge **20** on which the jacket **14** of the cap element **6** is supported (see FIG. **5**). Starting from the supporting edge **20**, an intermediate plate **22** extends, rising slightly toward the center and forming a dome-like elevation in the center. The dome-like elevation contains an approximately cylindrical apron **24** with an upper apron part and a lower apron part. The upper apron part simulates a bottleneck piece **24***a* and the bottleneck of the bottle **2**. The lower apron part simulates a bottleneck connection **24***b*, which engages in the bottleneck of the bottle **2** and/or in bottleneck piece **24***a* of another adapter **12**. The bottleneck connection **24***b* has an insertion bevel at its lower edge with which it is inserted into the bottleneck of the bottle **2**.

[**0032**] Another supporting edge **26** is formed at the upper end of the bottleneck connection **24***b* with a bottleneck connection **28** of the cap element **6** being supported on this edge. The cylindrical bottleneck piece **24***a* is connected to the additional supporting edge **26** on the outside radially. The radial offset between the bottleneck piece **24***a* and the bottleneck connection **24***b* corresponds to the wall thickness of the bottleneck connection **28** of the cap element **6**, so that this conforms at its circumferential wall to the inside wall of the bottleneck piece **24***a* and at the same time is flush with the bottleneck connection **24***b* on the inside.

[**0033**] The cap element **6** is supported with its outer jacket **14** on the supporting edge **20** of the adapter **12**. A cover plate **30** that seals the cap element **6** except for an outlet opening **32** extends from the upper edge of the jacket **14**. The bottleneck connection **28** extends downward around the outlet opening, starting from the cover plate **30**, likewise in the manner of an apron. Supporting struts **34** are disposed on the underside of the intermediate plate **22** and preferably the cover plate **30** for an improvement mechanical stiffness, these struts extending generally radially inward from the jacket **14**, **16**, as shown in particular in FIGS. **4** and **6**.

[**0034**] In the upper area of the cap element **6**, a shoulder in the manner of a recess is formed peripherally to the cover plate **30**, with the closure cover **10** with its peripheral jacket (not shown in these figures) sitting on this recess, thus forming a continuous flush outer lateral surface of the entire closure element **4**. As an alternative to the precisely flush alignment of the lateral surfaces **14**, **16** of the cap element **6** of the adapter **16**, the lateral surface **14** of the cap element **6** may be recessed somewhat, as indicated in FIGS. **3** through **6**, so that the adapter **12** is emphasized somewhat.

[**0035**] The contour of the adapter **12** and its fastening to the cosmetic bottle **2** are illustrated again clearly in the sectional diagrams according to FIGS. **7** and **8**. These two figures show different variants of cosmetic bottles **2** that differ here in particular with regard to their width and also with regard to their outer contour. Specifically, the cosmetic bottle **2** according to FIG. **7** bulges outward following the closure element **4**, whereas the cosmetic bottle **2** that remains slender according to FIG. **8** is flush with the closure element **4** on the whole.

[**0036**] FIGS. **7** and **8** show the general contour of the cosmetic bottle **2** in the area of the closure element **4**. Starting from the outer circumference of the cosmetic bottle **2**, it has a cover section **40** in the area of the closure element, developing into a bottleneck **42** in the central area. The cover section **40** has a peripheral shoulder **44** which acts as a supporting edge for the out jacket of the adapter **16**. The jacket **16** is therefore supported with its end face on the shoulder **44**. Following the shoulder **44**, the cover section **40** runs parallel to the jacket **16** in a pinched area **46**. With the closure element **4** set in position, the adapter **12** sits on the cover section **40** in the pinched area **46** with a pinching effect. The dimensions of the pinched area **46** and of the jacket **16** are adapted here mutually for a pinch fit. Following the pinched area **46**, the cover section runs toward the inside and develops into the bottleneck **42**. The bottleneck connection **24** of the adapter **12** is in contact with the inside of the bottleneck **42**. The bottleneck **42** here forms an additional pinching contact surface for the adapter **12**. Therefore, on the whole, the adapter **12** with its jacket **16** on the one hand and with its bottleneck connection **24** on the other hand sits with a pinching effect on the cosmetic bottle **2**. The inside distance between the insides of the jacket **16** and the bottleneck connection **24** facing one another therefore corresponds essentially to the distance between the outsides of the pinched area **46** and the bottleneck **42**, so that a pinch fit is formed on the whole for secure seating of the adapter **12** on the cosmetic bottle **2**.

[**0037**] In basically the same way as the adapter **12** is placed on the cosmetic bottle **2** in the manner of a pinch fit, the cap element **6** is also placed on the adapter **12** in the manner of a pitch fit. To do so, an intermediate plate **22** of the adapter **12** has a pinched section **48** which extends vertically in the exemplary embodiment and with which the jacket **14** of the cap element is in contact. By analogy with the shoulder **44**, the adapter **12** forms the supporting edge **20**. The bottleneck piece **24***a* of the adapter continues to simulate the bottleneck **42** in a similar design. The cap element **6**, which is shown here only in a detail in an outer area, engages in the opening formed by the bottleneck piece **24***a* with its bottleneck connection **28**, which is not shown here. Thus a pinch fit is also achieved between the cap element **6** and the adapter **12**. Therefore, the distance between the insides of the jacket **14** of the cap element and the bottleneck connection **28** (see in particular FIG. **5**) corresponds to the distance between the outsides of the pinched section **48** and of the bottleneck piece **24**.

[**0038**] On the whole the adapter **12** assumes the geometry of the cosmetic bottle **2** in its head area due to this special geometry in its area oriented toward the cap element **6**. At the same time, the adapter **12** has a fastening geometry that corresponds to the geometry of the cap element **6** in its area oriented toward the cosmetic bottle **2**. Therefore, the adapter forms a universal connecting member between the cosmetic bottle **2** and the cap element **6** and may be used universally for different cap elements **6**. This adapter functionality is manifested in particular in the fact that the outside of the pinched section **48** is flush with the outside of the pinched area **46** of the cosmetic bottle **2** and furthermore the outside

of the bottleneck piece **24***a* of the adapter **12**, which is oriented toward the bottleneck opening, is still also flush with the bottleneck **42**.

1. A plastic closure element for a bottle, the plastic closure element comprising:

a cap element for closing the bottle, said cap element having a first bottleneck connection for placement on a bottleneck of the bottle; and

at least one adapter disposed between said cap element and the bottle, said adapter having a second bottleneck connection being similar to said first bottleneck connection and a bottleneck piece connected to said second bottleneck connection, said cap element disposed with said first bottleneck connection onto said bottleneck piece.

2. The plastic closure element according to claim 1, wherein said first bottleneck connection of said cap element is inserted into said bottleneck piece such that said second bottleneck connection of said adapter is flush in its connection to said first bottleneck connection.

3. The plastic closure element according to claim 1, wherein said adapter has a peripheral outer jacket and said second bottleneck piece protrudes upward above said peripheral outer jacket toward said cap element.

4. The plastic closure element according to claim 1, wherein:

said adapter further has a peripheral outer jacket and an intermediate plate extending outward from said peripheral outer jacket; and

said second bottleneck connection and said bottleneck piece are disposed in a central area of said adapter and extend outward in opposite directions.

5. The plastic closure element according to claim 4, wherein said intermediate plate rises toward said cap element.

6. The plastic closure element according to claim 1, wherein said second bottleneck connection and said bottleneck piece form a cylindrical apron with an upper apron part and a lower apron part having different inside diameters.

7. The plastic closure element according to claim 1, wherein said adapter has an outer jacket with an embossing.

8. The plastic closure element according to claim 1, wherein said cap element and said adapter each have a peripheral outer jacket which are flush with one another.

9. The plastic closure element according to claim 1, further comprising a closure cover with a hinge, said closure cover pivotably moveably attached via said hinge to said cap element.

10. The plastic closure element according to claim 1, wherein said first and second bottleneck connections are snap closures.

11. The plastic closure element according to claim 1, wherein said adaptor is configured for a cosmetic bottle.

12. An adapter for a cap element to form a closure element, the cap element having a first bottleneck connection for placement on a bottleneck of the bottle, the adapter comprising:

a second bottleneck connection being similar to the first bottleneck connection of the cap element; and

a bottleneck piece connected to said second bottleneck connection, the cap element with the first bottleneck connection being placed into said bottleneck piece.

13. An assortment of closure elements, comprising:

a plurality of differently configured cap element types, said cap element types each have a first bottleneck connection configured for attachment to a bottleneck of a bottle; and

at least one adapter type fitting said cap element types, said adapter having a second bottleneck connection being similar to said first bottleneck connection, and a bottleneck piece connected to said second bottleneck connection, and said cap element types being attachable with said first bottleneck connection onto said bottleneck piece.

* * * * *